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ABSTRACT

This publication presents information on physical activity among children and youth. Section 1 discusses physical activity patterns of young people, explaining that the issue has been a concern for educators and health professionals for several years because of the trend for children to become less and less active over time. Section 2 looks at how much physical activity is enough, presenting information from a report of the Council for Physical Activity for Children of the National Association for Sport and Physical Education. Section 3 describes the Center for Disease Control's guidelines for school and community programs to promote lifelong physical activity among young people. The guidelines are based on a premise that youngsters are more likely to develop physically active lifestyles if they are provided with physical activity experiences they enjoy and with which they can be successful. Section 4 discusses the current status of physical education in schools, noting that physical education is an entrenched component of American public education. However, exposure to physical education is uneven and declines rapidly as students progress through high school. (SM)

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President's Council on Physical Fitness and Sports

# Research Digest

Series 3, No. 3 Sept. 1998

## Physical Activity for Young People

### Introduction

The President's Council on Physical Fitness and Sports (PCPFS) has a longstanding history of promoting physical activity/fitness, and sports for children and youth. In fact the Council was originally named the President's Council on Youth Fitness. Though the charge of the Council has been expanded to promote physical activity/fitness, and sports among all segments of the population, a paramount concern for youth still exists.

Consistent with interest in children and youth, the *PCPFS Research Digest* has made it a point to focus on children from time to time. When possible, the Fall issue features children and youth. In the fall of 1994, factors that influence physical activity among children were discussed. Subsequent issues of the *PCPFS Research Digest* discussed appropriate physical activity levels for youth (November 1994), the health benefits of physical activity for children and adolescents (December 1995), youth sports in America (September 1997), and psychophysiological contributions of physical activity and sports for girls (March 1998).

In the past few years, much attention has been given to physical activity for children and several important documents have been published that present vital information about children and adolescents in physical activity. In this issue of the *PCPFS Research Digest*, the focus is again on physical activity and youth. We, the editors, have teamed with Russ Pate a past president of the American College of Sports Medicine and one of the leading authorities on youth activity to bring you up to date on recent information about physical activity promotion for youth.

Physical activity and youth is covered in four sections. First, the physical activity patterns of young people are discussed. The second section deals with the amount of physical activity considered appropriate for children and adolescents. The first two sections offer an understanding about how active youth should be. The third section provides guidelines for getting youth to perform adequate amounts of physical activity. Since all youth must attend school, school physical education is a logical place to provide opportunities for youth physical

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**Table 1. Important Documents for Those Interested in Youth Physical Activity Promotion**

1. Centers for Disease Control and Prevention. (1998). Youth risk behavior surveillance – United States, 1997. *Morbidity and Mortality Weekly Report*, 47 (No. SS-3), 1-89.

2. Rowland, T.W. (1990). Exercise and Children's Health. Champaign, IL: Human Kinetics.

3. National Association for Sport and Physical Education. (1998). *Physical activity for children: A statement of guidelines*. Reston, VA: NASPE Publications.

4. Sallis, J.F., Patrick K., & Long B.L. (1994). An overview of international consensus conference on physical activity guidelines for adolescents. *Pediatric Exercise Science*, 6, 299-301.

5. Centers for Disease Control and Prevention. (1997). Guidelines for school and community programs to promote lifelong physical activity among young people. *Morbidity and Mortality Weekly Report*, 46 (No. RR-6), 1-36.

6. Pate, R.R., Small, M.L., Ross, J.G., Young, J.C., Flint, K.H., & Warren, C.W. (1995). School Physical Education. *Journal of School Health*, 65, 312-318.

7. U. S. Department of Health and Human Services. (1996). ***Physical Activity and Health: A Report of the Surgeon General***, Atlanta, GA: U. S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.

activity. The final section of this *PCPFS Research Digest* describes the current status of physical education in schools.

The contents of this digest are based on several recent reports (see Table 1). Readers are encouraged to acquire copies of the documents cited in this Digest and to use them in their efforts to promote physical activity among all children and adolescents.

## Physical Activity Patterns of Young People

Though the physical activity behavior of young people has been a concern for educators and health professionals for several decades, our knowledge about the amounts and patterns of physical activity in the population of American children and youth is limited. Only in recent years have national health surveys included measures of physical activity, and these surveys have focused only on youngsters of high school age. The methodologies for these public health surveys have utilized self-reports of recent participation in types of physical activity. Despite these limitations, the available evidence does allow us to draw some conclusions about the physical activity behavior of our youth.

The U.S. Centers for Disease Control and Prevention (CDC) now administers, on alternate years, the Youth Risk Behavior Surveillance (YRBS) to a national probability sample of American high school students. That survey includes questions regarding participation in bouts of vigorous physical activity, stretching exercises, and strengthening exercises during the seven days prior to completion of the questionnaire. The results of the 1997 YRBS, summarized in Table 2, show that a great many American youth are quite active, but a sizeable fraction fail to meet current physical activity standards (See Reference 1, Table 1). Nearly two-thirds (63.8%) of U.S. high school students reported participating in three or more bouts of vigorous physical activity during the previous seven days - an observation that is both encouraging and disappointing. On the positive side, this is a vastly higher percentage than is seen with U.S. adults, among whom only 10-12% regularly participate in vigorous activity. However, it is worrisome that over one-third of high school youth fail to meet this standard. A full one-half of students did not meet the standards for stretching and strengthening exercises.

**Table 2. Percentage of high school students who participated in vigorous physical activity, *stretching exercises, § and strengthening exercises, ¶ by sex, race/ethnicity, and grade —United States, Youth Risk Behavior Survey, 1997**

| | Participated in vigorous physical activity | | | Participated in stretching exercise | | | Participated in strengthing exercises | | |
|---|---|---|---|---|---|---|---|---|---|
| Category | Female | Male | Total | Female | Male | Total | Female | Male | Total |
| Race/Ethnicity | | | | | | | | | |
| White** | 58.4 | 73.4 | 66.8 | 53.4 | 51.5 | 52.4 | 46.1 | 57.8 | 52.7 |
| Black** | 41.3 | 67.1 | 53.9 | 41.8 | 54.0 | 47.8 | 34.8 | 59.2 | 46.7 |
| Hispanic | 49.9 | 69.2 | 60.4 | 49.9 | 54.1 | 52.2 | 43.2 | 61.7 | 53.3 |
| Grade | | | | | | | | | |
| 9 | 66.1 | 78.7 | 72.7 | 59.8 | 57.1 | 58.4 | 52.0 | 63.1 | 57.8 |
| 10 | 55.7 | 74.3 | 65.9 | 54.6 | 55.0 | 54.9 | 44.5 | 56.7 | 51.2 |
| 11 | 49.4 | 68.9 | 60.0 | 46.9 | 47.9 | 47.5 | 42.9 | 58.6 | 51.5 |
| 12 | 43.6 | 68.4 | 57.5 | 41.0 | 48.9 | 45.5 | 34.3 | 55.0 | 46.0 |
| Total | 53.5 | 72.3 | 63.8 | 50.4 | 52.0 | 51.3 | 43.2 | 58.1 | 51.4 |

* Activities that caused sweating and hard breathing for at least 20 minutes on ≥3 of the days preceding the survey.

§ Such as toe touching, knee bending, or leg stretching on ≥3 of the 7 days preceding the survey.

¶ Such as push-ups, sit-ups, or weightlifting on ≥3 of the 7 days preceding the survey.

** Non-Hispanic.

An examination of the relationships between major demographic variables and the YRBS physical activity data reveals several disquieting trends. First, it is clear that substantially fewer girls than boys meet the standards for vigorous physical activity and strengthening exercises. The gender difference for vigorous physical activity is quite dramatic and approaches 20% (72.3 vs. 53.5%). Another trend is the decline in physical activity with increasing age. This trend is seen in both boys and girls but is considerably more prominent in girls. For example, between 9th and 12th grades the percentage of boys meeting the vigorous physical activity standard declines by 10%, but in girls the decline is 23%, and this is despite the fact that in the 9th grade the percentage of girls meeting this standard was already lower than among boys.

YRBS also shows that race/ethnicity is associated with physical activity, particularly among girls. For all three physical activity variables presented in Table 1, the percentage of Black girls meeting the recommended standard was considerably lower than among White or Hispanic girls. Interestingly, among boys the differences among races/ethnicities were much less marked. This suggests that ethnic-based cultural factors may operate as powerful determinants of physical activity among females.

As noted, the YRBS data cited above are for secondary school students. Though data are more limited on younger children, various sources have documented that young children are among the most active of the American population (See Reference 2, Table 1). Of concern is the fact that with each increasing year of age, activity levels tend to decline. Just as teens decrease in activity with age, it also appears that activity begins to decrease in early childhood. Again, the good news is that most young children are active. The bad news is that as time passes more and more youth become sedentary.

## How Much Physical Activity Is Enough?

Physical Activity Guidelines for Children. After extensive review over a three year period of time the Council for Physical Activity for Children (COPEC) of the National Association for Sport and Physical Education (NASPE) published guidelines concerning appropriate amounts of physical activity for children (see Reference 3, Table 1). The complete report of the guidelines presents the rationale, activity models for children, important concepts relating to children in physical activity, and five basic guidelines supported by research evidence. The information that follows abstracts the information in the COPEC/NASPE report.

The guidelines were prepared because of the confusion about "how much physical activity is enough" for children. In the past, recommendations for children were basically the same as those for adults. The intent was to provide guidelines specifically for children. The five basic guidelines are summarized in Table 3.

**Table 3. Physical Activity for Children: Guidelines Summary***

- Guidelines 1. Elementary school aged children should accumulate at least 30 to 60 minutes of age appropriate physical activity from a variety of physical activities on all, or most, days of the week.
- Guideline 2. An accumulation of more than 60 minutes, and up to several hours per day of age and developmentally appropriate activity is encouraged for elementary school aged children.
- Guideline 3. Some of the child's physical activity each day should be in periods lasting 10 to 15 minutes or more and include moderate to vigorous physical activity. This activity will typically be intermittent in nature involving alternating moderate to vigorous activity with brief periods of rest and recovery.
- Guideline 4. Extended periods of inactivity are inappropriate for children.
- Guideline 5. A variety of physical activities is recommended for elementary school children.

*Adapted from Reference 3, Table 1.

The guidelines in Table 3 aid teachers, coaches, parents, and others that work with children in physical activity and help them make decisions that are in the best interest of children. Like adults, children can benefit from activity when it is offered in the appropriate amount. However, because children are inherently active, need activity for normal growth and development, and need time in activity to develop lifetime physical activity skills, they require more activity than adults. In addition children need to focus on building all parts of health-related physical fitness and that takes time. These are the reasons why guidelines 1 and 2 specify more physical activity for children than for adults.

Because children have a short attention span and are concrete rather than abstract thinkers they are not captivated by continuous vigorous activity as are some adults. Further, children are intermittently active by nature. They exercise vigorously for a while, then rest. Evidence suggests that such intermittent exercise is necessary for normal growth giving rise to the need for guideline 3. Children can and should do vigorous physical activity, but it is typically done in short bursts followed by rest periods. Normal and typical child's play follows this pattern making an accumulation of this type of activity appropriate. Assumptions that children are inactive if they do not perform continuous vigorous activity are inaccurate.

Guideline 4 discourages long periods of inactivity for children. As shown earlier, children become less active over time. This may be in part due to normal developmental changes. However, a considerable amount of the decrease may be a result of learned behavior. We know that youth inactivity tracks to adult inactivity.

Inactive children typically become inactive adults. Avoiding long periods of inactivity promotes activity and may keep active patterns alive. For this reason, frequent periods of activity during the day, including recess and physical education classes in schools, are recommended.

All of the activity suggested for children should be developmentally appropriate. For young children the majority of activity is in play that is intermittent in nature. Expecting children to do what adults do is inappropriate. Still variety is important and children are encouraged to participate in a variety of activities (Guideline 5). A part of the variety should include participation in activities that build all parts of health-related physical fitness including cardiovascular fitness, strength, muscular endurance, flexibility and healthy body composition. Also children should be encouraged to perform activities of daily living such as walking or riding their bikes to school, working in the yard, and doing household chores. Since it has been shown that these activities benefit adults, it is quite probable that performing lifestyle activities early in life can promote active lifestyles as adults.

The COPEC/NASPE report provides more details on how the guidelines can be adapted to the needs of children age 5-9 and children age 10-12. For more information consult the report directly.

Physical Activity Guidelines for Adolescents. In 1994, an international conference was held to establish physical activity guidelines for adolescents. These guidelines were to establish how much activity is appropriate for teens. These guidelines are summarized in Table 4.

**Table 4. Physical Activity for Adolescents: Guidelines Summary***

- Guideline 1. All adolescents should be physically active daily, or nearly every day, as part of play, games, sports, work, transportation, recreation, physical education, or planned exercise, in the family, school and community activities.
- Guideline 2. Adolescents should engage in three or more sessions per week of activities that last 20 minutes or more at a time and require moderate to vigorous levels of exertion.

*From Reference 4, Table 1.

It is obvious from Table 4 that the guidelines for adolescents are more similar to adult guidelines than the guidelines for children. Still much of the activity of teens will be associated with school and community activities. Encouraging a wide variety of activities encourages teens to learn lifestyle physical activities that can be used for a lifetime.

## Guidelines for School and Community Programs to Promote Lifelong Physical Activity among Young People

In 1997 CDC's Division of Adolescent and School Health published a comprehensive set of guidelines on promotion of physical activity in adolescents (See Reference 5, Table 1). Based on an extensive search of the scientific literature and consultation with a broad array of experts, the guidelines were intended to provide educators and other professionals with a summary of current best practices for promoting physical activity in young people. While the emphasis is on initiatives that can be implemented in schools, attention is also given to the roles of parents, community organizations, and health care professionals. Table 5 provides a summary of the major recommendations presented in the guidelines.

The Guidelines are based on the premise that youngsters are most likely to develop physically active lifestyles if they are provided with physical activity experiences they enjoy and with which they can be successful. Enjoyment and success require that the physical activities are developmentally appropriate and well matched to the individual or group's interests. Accordingly, activities should be selected with careful attention to the age, gender, skill level, and cultural characteristics of the youngsters involved. If all the Guidelines were thoroughly and effectively implemented, American youngsters would encounter environments that are supportive of enjoyable physical activity in the settings in which they spend almost all their time: home, school, and community.

## Current Status of Physical Education in Schools

Physical education has been an institution in American schools for over a century. However, only in recent years have carefully designed national surveys of physical education practices and enrollment been conducted. One source of information on the status of physical education in the U.S. is YRBS, which queries high school students about enrollment in physical education. The other major source of information is the School Health Policies and Practices Study (SHPPS), which was conducted by the CDC in 1994. SHPPS provides information concerning a wide array of state, district, and school policies pertinent to physical education. Also, SHPPS queries school personnel, including individual physical education teachers, concerning curricular and instructional practices.

The results of SHPPS support the conclusion that physical education is an entrenched component of American public education. Almost all states (94%) and school districts (95%) require schools to offer physical education, and in the vast majority of states (82%) and districts (93%) the physical education program is supported by a written curriculum, guideline or framework document. However, compliance with a prescribed curriculum is unevenly monitored - 55% of states and 70% of districts reported monitoring compliance with the established physical education curriculum. Policies provide for specialized certification of physical education teachers in 92% of states, and the same per-

**Table 5. Guidelines for Promoting Physical Activity Among Youth***

1. **Policy:** Schools and communities should establish policies that promote enjoyable, lifelong physical activity among young people.
2. **Environment:** Schools and communities should provide physical and social environments that encourage and enable safe and enjoyable physical activity.
3. **Physical Education:** Schools should implement physical education programs that emphasize enjoyable participation in physical activity and that help students develop the knowledge, attitudes, motor skills, behavioral skills, and confidence needed to adopt and maintain physically active lifestyles.
4. **Health Education:** Schools should implement health education programs that help students develop the knowledge, attitudes, behavioral skills, and confidence needed to adopt and maintain physically active lifestyles.
5. **Extracurricular Activities:** Schools should provide extracurricular physical activity programs that meet the needs and interests of all students.
6. **Parental Involvement:** Parents and guardians should be in physical activity instruction programs and in extracurricular and community physical activity programs, and they should be encouraged to support their children's participation in enjoyable physical activity.
7. **Personnel Training:** Schools and communities should provide training for education, coaching, recreation, and health-care personnel that imparts the knowledge and skills needed to effectively promote enjoyable, lifelong physical activity among young people.
8. **Health Services:** Health care professionals should assess physical activity patterns among young people, counsel them about physical activity, refer them to appropriate programs, and advocate for physical activity instruction and programs for young people.
9. **Community Programs:** Communities should provide a range of developmentally appropriate community sports and recreation programs that are attractive to all young people.
10. **Evaluation:** Schools and communities should regularly evaluate physical activity instruction, programs, and facilities.

*From Reference 5, Table 1

centage of states require secondary level physical education teachers to be certified in physical education. In contrast, only 17% of states require elementary level physical education teachers to be certified in physical education. Almost half of states (43%) provide for a combined physical education/health education teacher certification. A minority of states (23%) and districts (29%) have policies requiring administration of a physical fitness test.

SHPPS data collected at the school level provide an informative profile of policies pertinent to physical education requirements. Almost all middle/junior high schools (92%) and high schools (93%) report requiring students to complete at least one physical education course. About one-half of middle/junior high schools (47%) require three years of physical education, but only 26% of high schools require three or more years of physical education. At the high school level the requirement is split about equally between one year (37%), two years (25%), and three or more years (26%). The length of a required physical education course and the frequency of class meetings varies markedly across schools. In about half of schools (54%) the physical education course spans the entire school year (36 weeks), but a one semester (18 weeks) requirement is also quite common (20%). Physical education classes usually meet five days per week (59% of schools), but in a sizeable fraction of schools (17%) the frequency of class meetings is one or two days per week. Though it is beyond the scope of this paper to provide a complete overview of the findings in SHPPS, this survey does provide information on curricular offerings and instructional practices in physical education. This information is summarized in another source (see Reference 6, Table 1).

YRBS, by surveying high school students themselves, provides an alternative source of information on the status of physical education. The YRBS questionnaire includes two items that pertain to physical education. One item queries the frequency of attendance at physical education classes, and the second item asks for an estimation of the physical education class time typically spent exercising or playing sports. The results of the 1997 YRBS indicate that enrollment in physical education declines from approximately 70% of students in the 9th grade to fewer than 40% in the 12th grade. Only 27% of students attend physical education class on a daily basis, and that fraction declines from 43% of 9th graders to 19% of 11th and 12th graders. On a positive note, a sizeable majority of students (74 %) who are enrolled in physical education report actively playing sports or exercising for 20 or more minutes per class.

The information provided by SHPPS and YRBS present a mixed picture regarding the status of physical education in the United States. On the one hand, the results of the two surveys support the conclusion that physical education is an institutionalized component of the educational system and that virtually all children are extensively exposed to physical education during their years as students in American schools. At the secondary level, almost all teachers who deliver instruction in physical education are required to hold specialized certification in the field. However, SHPPS and YRBS also show that exposure to physical

education is uneven and declines rapidly as youngsters progress through high school. In addition, it seems clear that there is rather limited accountability for physical education. Indeed, even with the recent adoption of national surveys like SHPPS and YRBS, our knowledge of the quality of physical education curricula and instruction is very limited. Refinement of the survey instruments used in these studies may provide more information of "quality" issues in the future.

## Summary

At no time in our history have we had so much information available on the benefits of physical activity to people of all ages—including youth. The American Heart Association has made sedentary living a primary risk factor for heart disease, rather than a secondary factor. The Surgeon General's Report on Physical Activity and Health (See Reference 7, Table 1) clearly establishes the health benefits of physical activity for people of all ages. It is also clear that children and adolescents are more active than adults in our society. But as children grow older they become less active, with the decline in activity especially prominent among teen-age girls.

We now know how much physical activity is appropriate for different age groups and we know that we must adapt activity to people depending on age and developmental level. Guidelines have been established to aid teachers, coaches, parents and other leaders of children in implementing programs that promote lifelong physical activity. The information is now available. It is up to us to be informed and to use the information to help youth of all ages to be active throughout life.

**The President's Council on Physical Fitness and Sports Research Digest is now available on-line at http://www.indiana.edu/~preschal**

Twenty-two previously published *PCPFS Research Digests* are now available in a bound, hard cover book as follows: Corbin, C. & Pangrazi, R. (1998). **Toward a Better Understanding of Physical Fitness and Activity**. Scottsdale, Arizona: Holcomb, Hathaway Publishers.

Please note that the appropriate language for the citation of this resource is:

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## The President's Council on Physical Fitness and Sports

*The President's Council on Physical Fitness and Sports (PCPFS)* was established in 1956 through an Executive Order by President Dwight D. Eisenhower as part of a national campaign to help shape up America's younger generation. Today, the PCPFS serves as an advisory council to the President and Secretary of the Department of Health & Human Services on matters involving physical activity, fitness and sports to enhance and improve the health of Americans of all ages.

The PCPFS enlists the active support and assistance of individual citizens, civic groups, private enterprise, and voluntary organizations to promote and improve the physical activity and fitness of all Americans and to inform the public of the important link which exists between regular activity and good health.

Twenty (20) individuals from the sports, fitness and health fields are appointed by the President to serve as members of the Council. They are:

**Elizabeth Arendt,** M.D., St. Paul, MN
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**Ralph Boston,** Knoxville, TN
**Don Casey,** East Rutherford, NJ
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Three (3) vacancies

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# Physical Activity and Fitness Quote

"Youngsters are most likely to develop physically active lifestyles if they are provided with physical activity experiences they enjoy and with which they can be successful."

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